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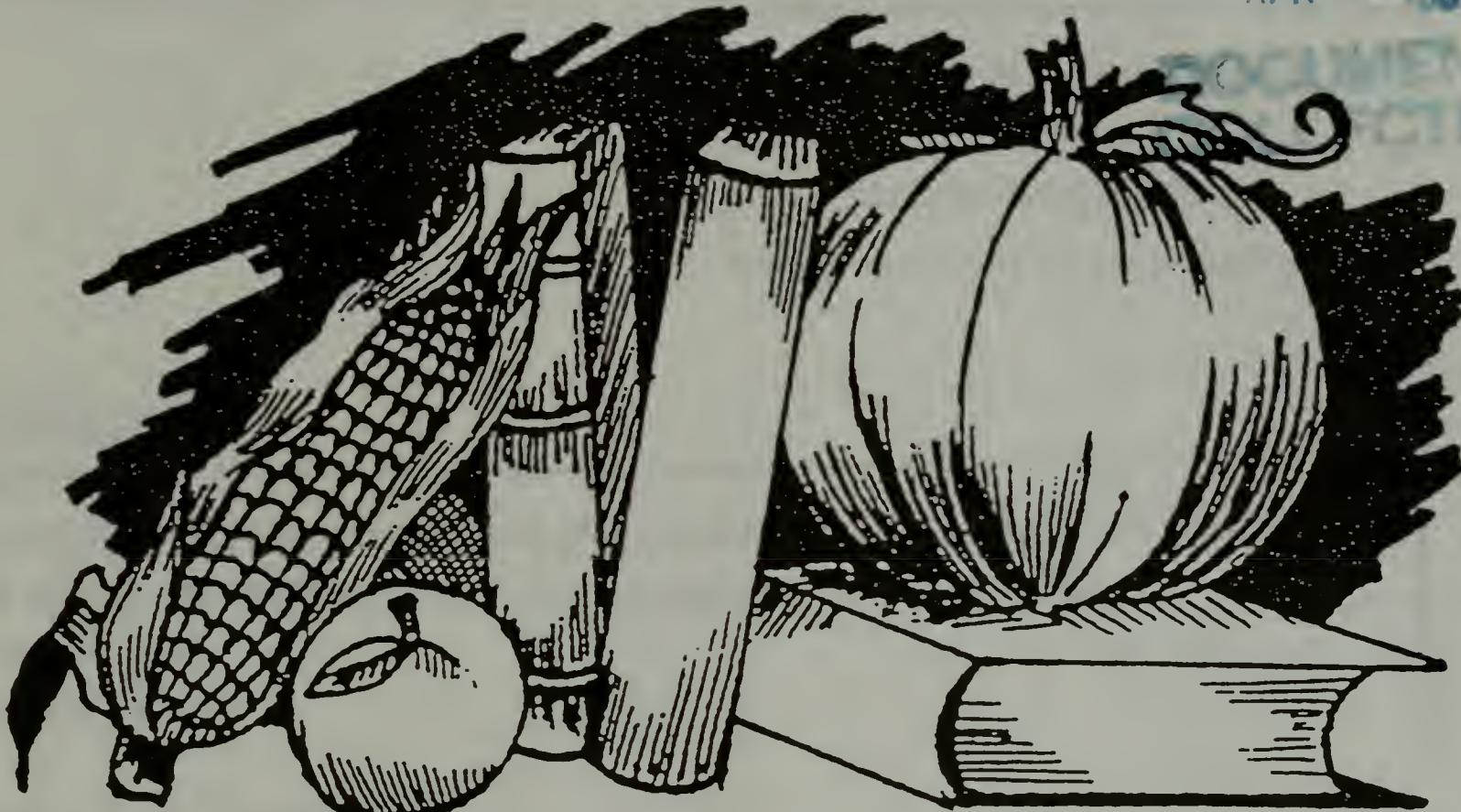
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IT'S YOUR WORLD

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Learning Activities For Grades K-3

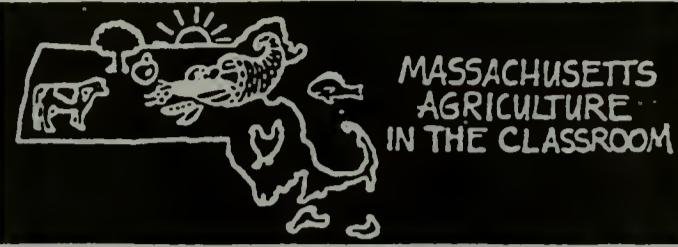
Presented By

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MASSACHUSETTS AGRICULTURE IN THE CLASSROOM, INC.



IT'S YOUR WORLD



PEACHES AND POTATOES

UNIT GOAL

To graph an assortment of foods according to a variety of categories.

MATERIALS

A variety of foods, real or pictures (including Massachusetts food crops)
List of Massachusetts grown food crops (see Appendix A)
String or yarn
Category cards

Time: 15 to 20 minutes

OBJECTIVES

1. To identify an assortment of foods.
2. To graph foods based on similar or dissimilar characteristics.
3. To compare and contrast reasons for graphing choices.

Skills: sorting, listing, labeling, comparing, contrasting, graphing, classifying

PROCEDURE

Gather students in a circle on the floor. Place a variety of foods--actual foods, empty containers, or pictures from magazines--in the middle of the circle (have enough "foods" so that each student receives one). Also within the circle create a floor graph using two pieces of string placed in a "T" shape. Give each student a food. Have them place their food, one at a time, on the graph based on the category being tested. Possible categories include:

1. Like/dislike
2. Good for you/not so good for you
3. Fruit/vegetable

Have children come up with additional categories. Compare and contrast "likes/dislikes" to "good for you/not so good for you," etc. As a final category, and as a way of introducing or reviewing Massachusetts grown food crops, ask your students to graph the "foods" as to whether they are "grown in Massachusetts/not grown in Massachusetts."

If this activity is used as an introduction to Massachusetts grown crops ask students to make their best guess. This activity may also be used as a test for retention if students have already studied Massachusetts grown crops.

SOME MASSACHUSETTS AGRICULTURAL PRODUCTS

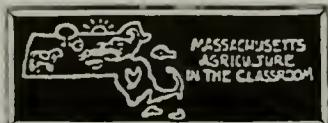
FOOD CROPS

Apples
Asparagus
Beans
Beef
Beets
Blueberries
Broccoli
Cabbage
Carrots
Cauliflower
Chicken
Cranberries
Cucumbers
Dairy Products
(manufactured)
Fish (fresh &
saltwater)
Honey
Lettuce
Maple Sugar
Products

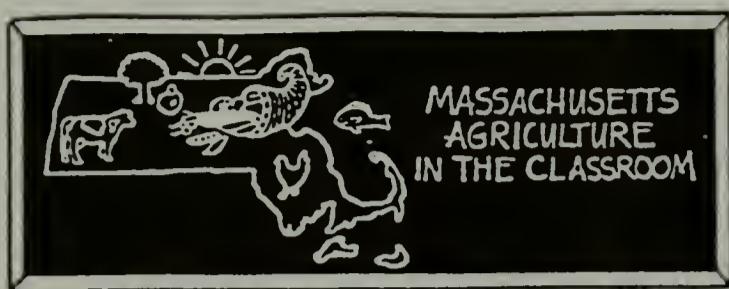
Melons
Milk (fluid)
Mutton and Lamb
Onions
Peaches
Peas
Peppers
Pork
Potatoes
Pumpkins
Shellfish
Spinach
Sprouts
Squash
Sweet Corn
Tomatoes
Turkeys
Turnips

NON-FOOD PRODUCTS

Bees
Christmas Trees
Corn (for livestock)
Firewood
Flowers (cut)
Forest Products
Greenhouse Plants
Hay
Horses (and other
recreational animals)
Laboratory Animals
Lumber
Nursery Shrubs
Paper
Sod (for lawns)
Tobacco
Wool



IT'S YOUR WORLD



SO YOU THINK IT'S A ...

UNIT GOAL

To describe and illustrate
Massachusetts grown agricultural
products.

MATERIALS

Paper
Crayons
Markers

Animals and Plants Found on Massachusetts Farms

Time: 20 to 35 minutes

OBJECTIVES

1. To predict a plant or animal crop based upon a verbal description.
2. To accurately describe an assigned plant or animal crop.
3. To draw a picture of the crop described.

Skills: observing, recognizing, predicting, drawing, evaluating,
selecting, describing, determining

PROCEDURE

This activity will give students the opportunity to find out the types of vegetables, fruits, and animals that are commonly found on Massachusetts farms. Assign each student a plant or animal from the list provided. Ask them to think of some clues they could give to help others guess their plant or animal. Explain that each student will give clues (students will take turns) which describe the plant or animal they have been assigned, while the rest of the class will draw a picture of the type of plant or animal they think is being described. You may want to use this activity with small groups of children so that they do not have to wait too long before getting a chance to describe their plant or animal. You could have several groups working around the room at the same time. These groups could come together after they finish to share what they came up with. Once each child in the group has had a turn giving clues, children should share their drawings to see if they drew the "correct" plant or animal.

ANIMALS AND PLANTS FOUND ON MASSACHUSETTS FARMS

APPLES	CUCUMBERS	PUMPKINS
ASPARAGUS	DAIRY CATTLE	SHEEP
BEEF CATTLE	HAY (VARIOUS PLANTS)	SPINACH
BEES (AN INSECT)	HORSES	SQUASH
BEETS	LETTUCE	SUGAR MAPLES
BLUEBERRIES	MELONS	SWEET CORN
BROCCOLI	ONIONS	SWINE (HOGS)
CAULIFLOWER	PEACHES	TOBACCO
CHICKENS	PEAS	TOMATOES
CORN	PEPPERS	TURKEYS
CRANBERRIES	POTATOES	TURNIPS



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IT'S YOUR WORLD



RIGHT BEFORE
YOUR EYES!

UNIT GOAL

To explain and illustrate the life cycle of a variety of Massachusetts grown crops.

MATERIALS

Paper
Pencils
Note (index) cards

Markers
Scissors

Crayons
Glue

Time: introduction, 10 to 15 minutes; research, one library period; life cycle cards, 20 minutes; sharing, 10 to 15 minutes

OBJECTIVES

1. To define life cycle.
2. To draw life cycle changes.
3. To compare and contrast a variety of life cycles.

Skills: sorting, sequencing, researching, designing, drawing, ordering, comparing, contrasting

PROCEDURE

Assign each student a plant or animal crop found on Massachusetts farms. Have them do some research to determine the needs of this crop, and the changes it goes through as it develops. Explain that all living things go through stages in their development and that we refer to this growth and development as a life cycle. Discuss and compare human changes in comparison and contrast. Have students illustrate these changes through a sequence of pictures representing the life cycle of their plant or animal. Have each student cut out their sequence and glue the individual pictures onto note cards. Ask students to then switch cards with each other and have students then attempt to sequence his neighbor's cards. Share life cycle information.

IT'S YOUR WORLD



START TO FINISH

UNIT GOAL

To sequence the order in which a variety of agricultural products get from a farm to our table.

MATERIALS

Sequence cards (see steps and pictures activity masters)

Note cards or cardboard

Contact paper or laminating machine

Time: 20 to 30 minutes

OBJECTIVES

1. To identify the life cycle of a variety of agricultural products.
2. To properly sequence the stages a product goes through to reach our tables.
3. To encourage students to work cooperatively as a group.

Skills: observing, recognizing, sorting, ordering, formulating, cooperating

PROCEDURE

Divide your class into groups. Explain that each group will receive a set of cards. Each set will contain enough cards for each student in the group. Tell students that each set of pictures, when put in the proper sequence or order, will show the steps necessary for a particular agricultural product to get from a farm to our table. Each set of cards will reflect a product that is grown in our state. Have groups work independently to come up with the sequence for their product. Each group should line up (holding their card over their heads) side by side according to the order in which they think their product gets from a farm to our table. Each group should then share their product and sequence with the rest of the class. Discuss the “start to finish” process and the steps and work involved in getting a product to market (planting, cultivating, picking, packaging, transporting, marketing, and selling).

FOLLOW-UP ACTIVITIES

1. Have students draw their own sequence cards for other Massachusetts grown products.
2. Have students color the pictures before covering with contact paper or before laminating.

NOTES

The card sets will hold up better if glued to cardboard or note cards, and then laminated or covered with contact paper.

Steps for Start to Finish Sequence Cards

Milk

1. Sun
2. Rain
3. Grass
4. Cow eating grass
5. Cow being milked
6. Milk being picked up on farms
7. Milk brought to dairy for processing/put in containers
8. Milk transported to stores
9. Glass of milk

Apples

1. Sun
2. Rain
3. Small apple tree--grafted
4. Larger tree with blossoms
5. Tree with leaves and ripe apples
6. Basket of apples
7. An apple pie

Sweet Corn

1. Plant seeds
2. Sun
3. Rain
4. Stalk (small)
5. Stalk (medium)
6. Stalk (large with ears)
7. Corn harvested
8. Corn still in husk
9. Corn ready to eat



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Continued

Steps for Start to Finish Sequence Cards

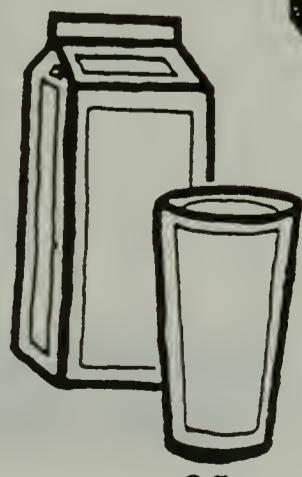
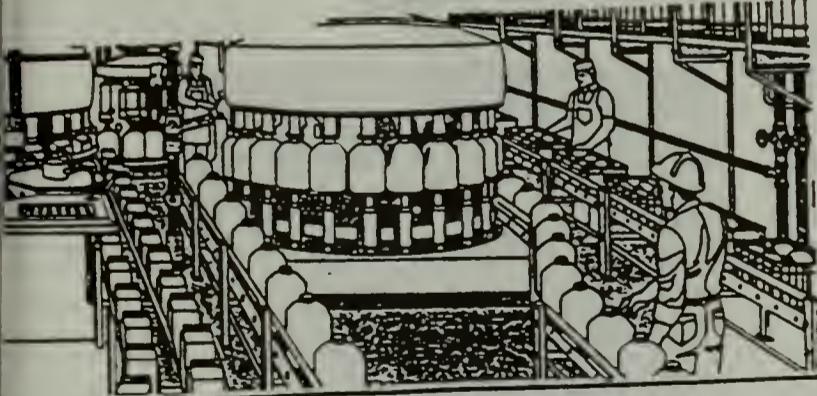
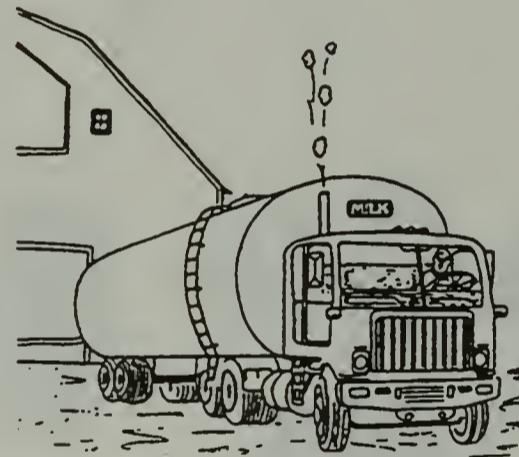
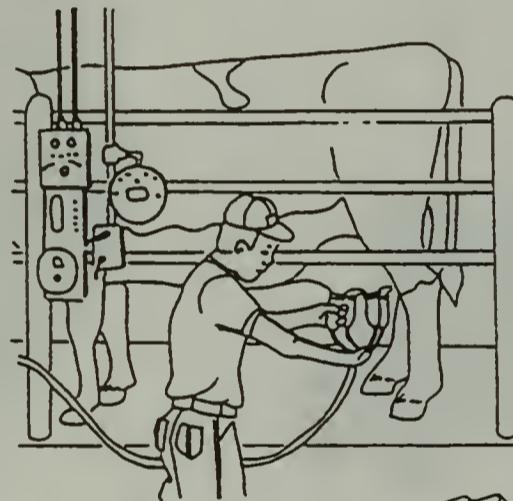
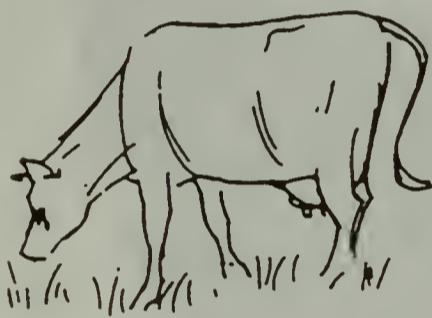
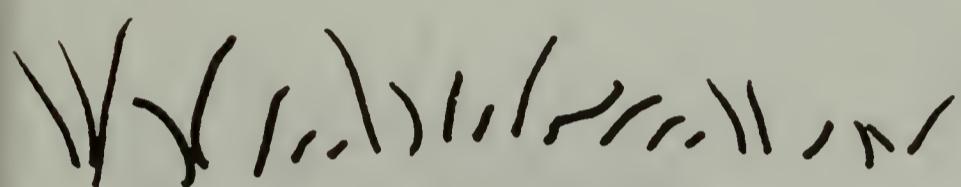
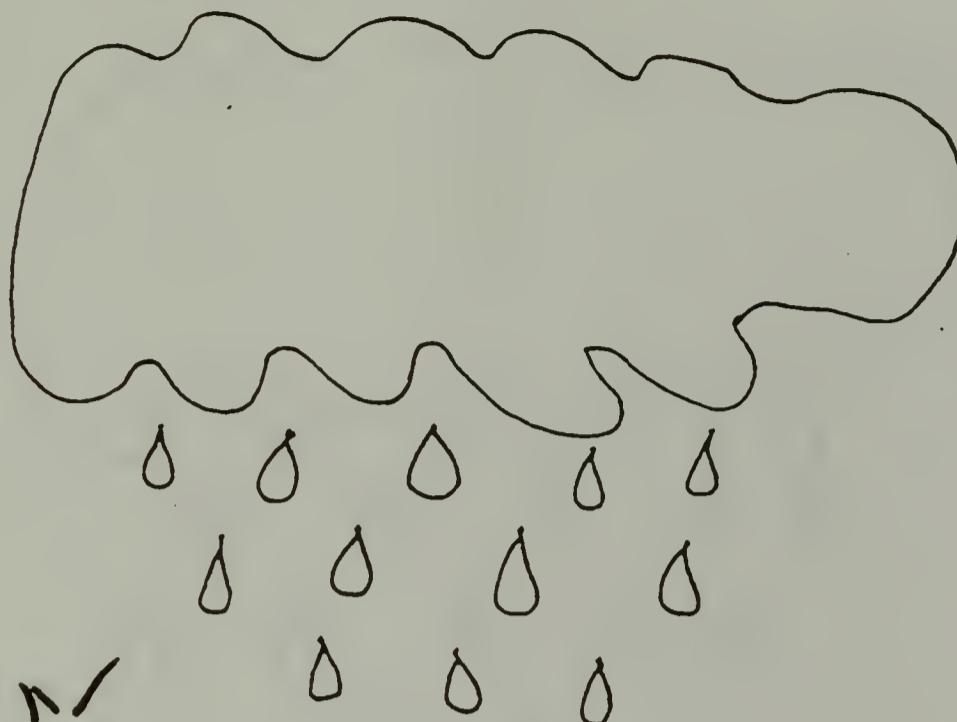
Plant

1. Plant seeds
2. Sun
3. Rain
4. Sprout
5. Small plant
6. Medium plant
7. Large plant
8. Plant in pot at nursery
9. Plant taken home/purchased

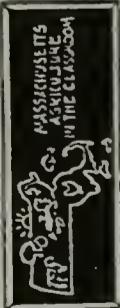


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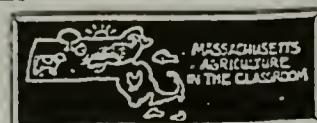
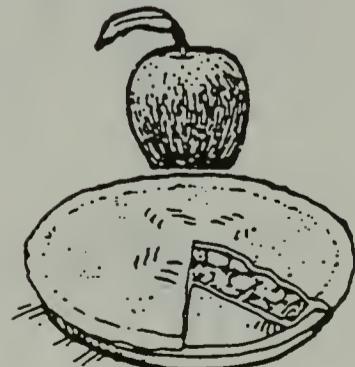
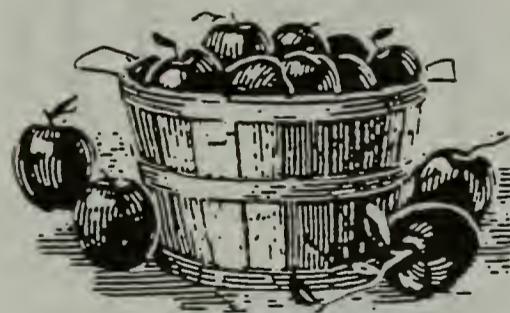
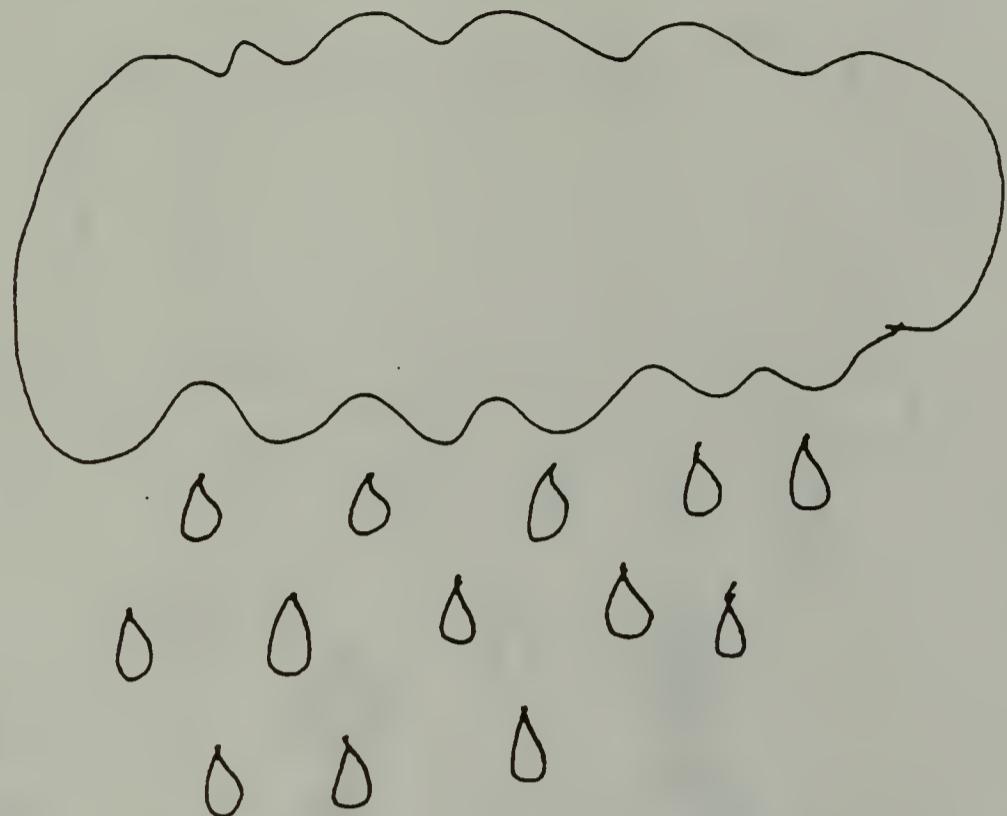
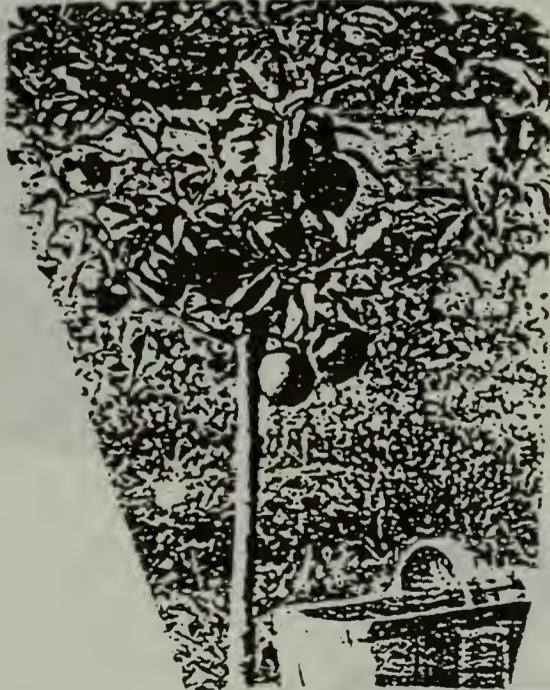
Pictures for Start to Finish Sequence Cards--Milk



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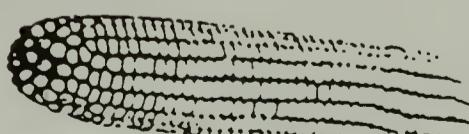
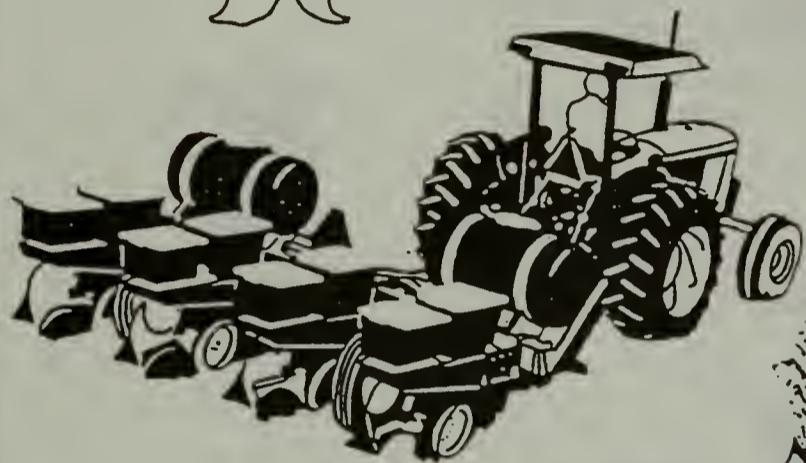


Pictures for Start to Finish Sequence Cards--Apples

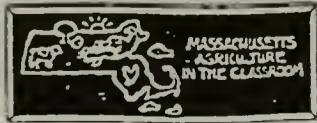
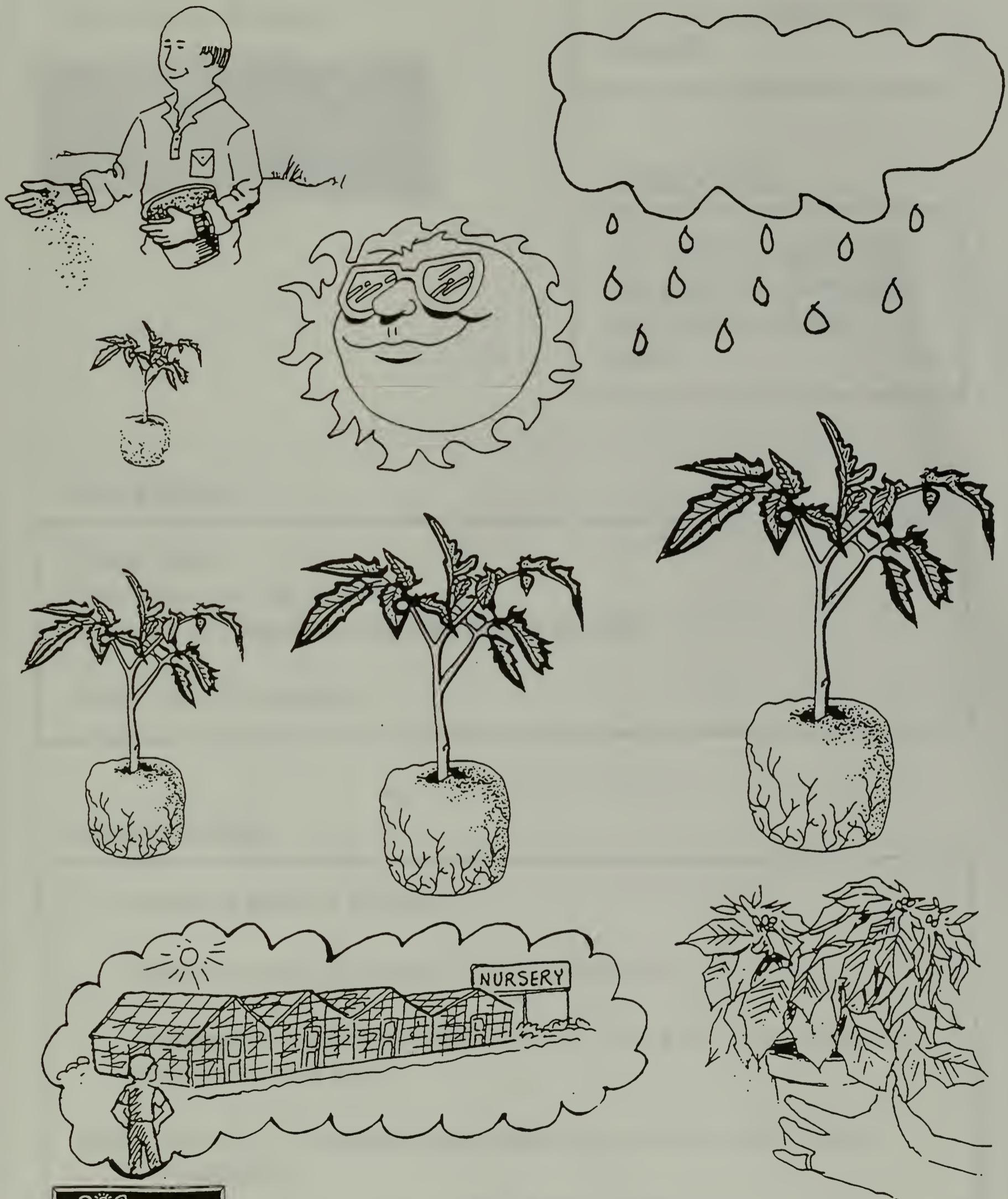


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Pictures for Start to Finish Sequence Cards--Sweet Corn



Pictures for Start to Finish Sequence Cards--Plants



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IT'S YOUR WORLD



MYTHICAL MYSTERY PLANT

UNIT GOAL

To introduce students to the parts of a plant and the function of each part.

MATERIALS

Plastic sheet

Plant Part and Job Guide

A variety of vegetables (Massachusetts grown!)

Time: 10 to 15 minutes

OBJECTIVES

1. To identify parts of a plant.
2. To discover and explain the "job" of each part.
3. To recognize a variety of vegetables as to the part of the plant that vegetable comes from.

Skills: listening, conceptualizing, observing, ordering, identifying, predicting

PROCEDURE

Gather your students in a circle. In the middle of the circle, place a piece of large, clean plastic. Have a variety of vegetables in front of you (chosen from the list included in this lesson, and representing one of each of the plant parts). Using these vegetables, lead your students through a discussion of plant parts and the jobs of each part. Create a mythical mystery plant as you talk. Using the "Plant Part and Job Guide" included in this lesson, construct a plant out of the vegetables representing each plant part. For example: seed--sunflower seeds; roots--carrots; stem--celery; leaves--lettuce; flowers--broccoli.

Begin your discussion with seeds and end your discussion with flowers. As you introduce each part place the vegetable representing that part in the proper spot. Ask students open-ended questions about each plant part and its job. Have them tell you which part comes next. Give the plant a name.

FOLLOW-UP ACTIVITIES

1. What plants do you like that begin with a, b, c...?
2. Make a salad out of the vegetables used in the discussion.

<u>Roots</u>	<u>Stems</u>	<u>Leaves</u>
beets	asparagus	cabbage
carrot	celery	kale
parsnip	onion	lettuce
radish	potato	parsley
turnip	rhubarb	spinach

<u>Flowers</u>	<u>Seeds</u>	<u>Fruit</u>
broccoli	beans	cucumber
cauliflower	corn	green pepper
	peas	tomato

Roots--absorb water and minerals from the soil; roots anchor the plant in the soil.

Stems--hold up the plant and carry water and nutrients to the rest of the plant.

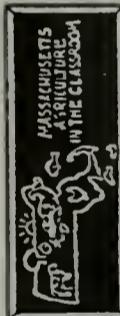
Leaves--produce food for the plant through the process of photosynthesis. Photosynthesis is a process which involves the stimulation of plant cells in the leaves by the sun which combine with water and minerals to produce food (sugar) for the plant.

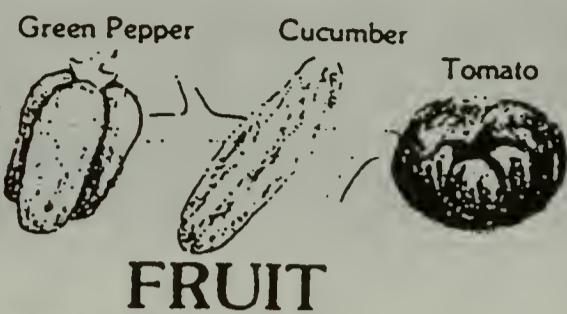
Flowers--vary according to the kind of plant. Flowers are needed to produce seeds; reproduction occurs here.

Fruits--are matured ovaries. The ovary is a flower part where seeds are produced.

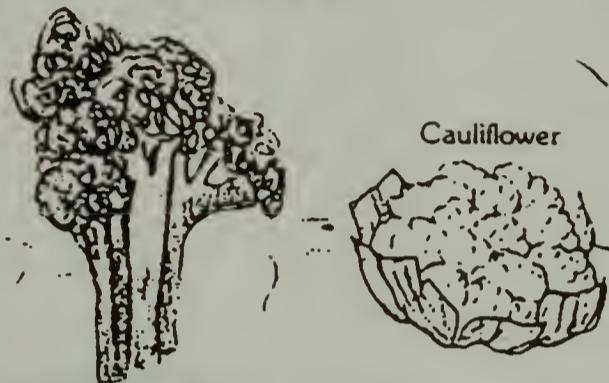
Seeds--are complete packages containing everything that is needed to produce a whole new plant.

Sunlight, water, temperature, and soil are also necessary ingredients for optimal plant growth.

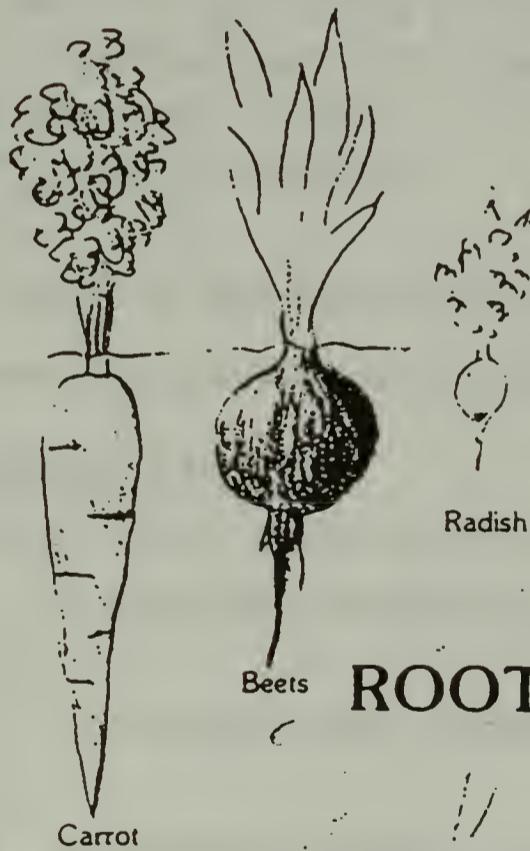




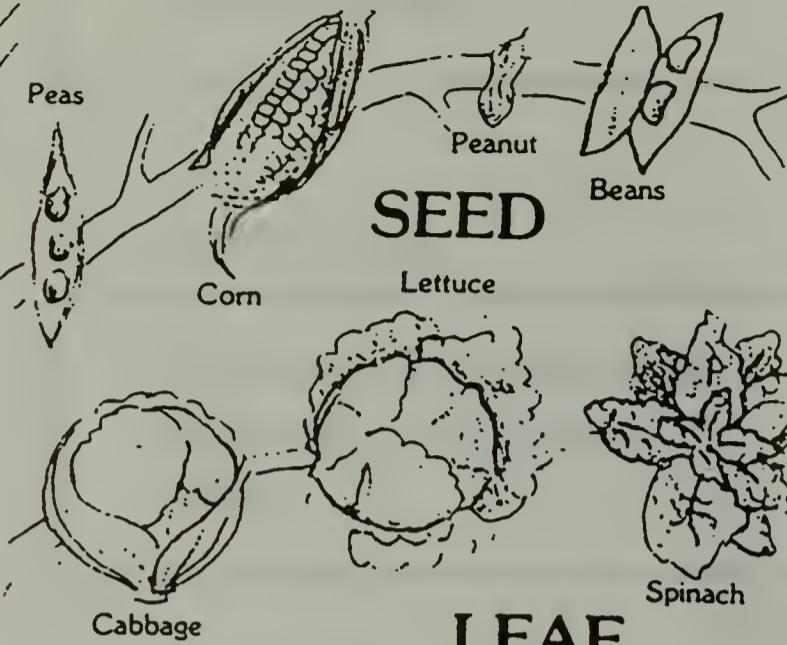
FRUIT



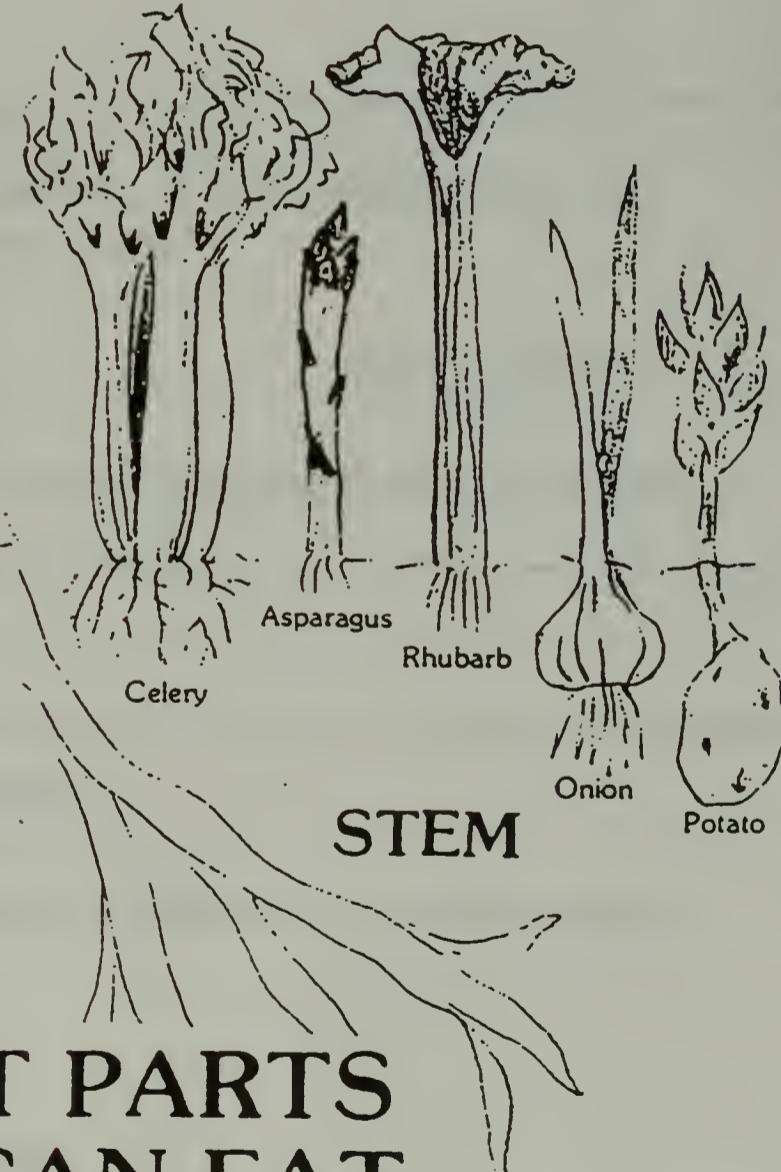
FLOWER



ROOT



LEAF



PLANT PARTS YOU CAN EAT



IT'S YOUR WORLD



SPROUTING, GROWING, CHANGING

UNIT GOAL

To observe and record the sprouting and growing of seeds.

MATERIALS

Seeds for sprouting (alfalfa, clover, radish)--1 teaspoonful per cup

Important--use only clean, untreated seeds

Paper cups (waxed, 2-3" deep)

Crayons or markers

Spray bottle

Time: 15 minutes; short periods for record keeping during the week

OBJECTIVES

1. To observe changes in sprouting seeds.
2. To compare and contrast the growth of different sprouting seeds.
3. To record changes.
4. To graph similarities and differences.

Skills: observing, recording, graphing, drawing, comparing, contrasting, discussing

PROCEDURE

Present each student with a plain paper cup. Ask them to draw a face on the cup, but not to put any hair on the face. Explain that their "cup faces" will be growing their own hair. After students have finished their faces hold up some seeds and explain that these seeds will become the "hair" for their "cup faces." Pass out seeds to students and have them plant them in their cups (you can use soil if you want but it is not really necessary). Have three different sprouting seeds so that some students receive one type and other students another. Compare/contrast growth. Rinse seeds every day with water--a spray bottle will be most effective. Tell students that they will be watching these seeds over the next week or so to see what happens to them. Have students make a Sprout Book in which they should record daily changes in their seeds. Students may draw or write about changes. The book should include:

1. A cover.
2. A picture of seeds when they received them.
3. A series of pictures of seeds as they grow/change.
4. Which seeds sprouted fastest/slowest?
5. Which seeds tasted the best?

FOLLOW-UP ACTIVITIES

1. Make a sprout salad as a culminating activity.
2. Graph seeds/sprouts according to taste, growth, size, length, etc.

IT'S YOUR WORLD



GREEN WATCH

UNIT GOAL

To compare and contrast the growth of different seeds planted under a variety of conditions.

MATERIALS

A variety of seeds
A variety of soils
Containers for planting
Pencils, markers, or crayons

Record books
Spray bottle

Time: ongoing project

OBJECTIVES

1. To compare and contrast the growth of a variety of seeds.
2. To record observations.
3. To identify and evaluate the effects of habitat on seed growth.

Skills: observing, applying, manipulating, graphing, recording, evaluating, experimenting, describing, interpreting, analyzing

PROCEDURE

The greenhouse and nursery industry in our state, often referred to as the Green Industry, is substantial. Nurseries provide flowers, plants, sod, trees, and other shrubbery to individuals and businesses all over the state. Keeping these plants healthy and providing the right environment for them is what the green industry is all about.

Plants have needs that must be satisfied in order for them to grow. Brainstorm a list of plant needs with your students. Compare and contrast possible plant needs to human needs. Plant needs include: sunlight, water, soil, nutrients, varying amounts of air, and a range of temperature requirements.

Contact a local nursery to see about setting up a field trip for your students to visit their operation.

In your classroom assign students to Green Watch Teams. Explain that each group will be planting seeds in a variety of different ways and controlling certain conditions for growth.

Have Green Watch Teams plant seeds and observe and record growth according to the following conditions:

1. Have one team plant two boxes or containers of seeds in potting soil. One box should be planted very carefully and orderly. The other box should be planted by just throwing the seeds into it. Compare results.
2. Have another team experiment with planting the same kind of seed in different types of soil (sand, clay, loam, etc.). Compare results.
3. Have another team plant seeds in the same type of soil, but place the seeds in very different places to expose them to a variety of weather conditions.

PROCEDURE CONTINUED

4. Have another team plant the same kind of seeds in two containers. Place one container in the sunlight. Place the other container in a closet.
5. Have another team plant the same kind of seeds in two containers. Water one container on a regular basis, when needed. Water the other container only now and then, giving small amounts of water.
6. Have each team observe and record the growth and development of their seeds (written observations, graphs, or drawings) in a group Green Watch book. Have each team present its findings and observations. Younger students may dictate or draw their observations.

NOTES

Gather a variety of seeds (flower, grass, vegetable), soils, and planting containers. A local nursery might even donate these materials if contacted.

